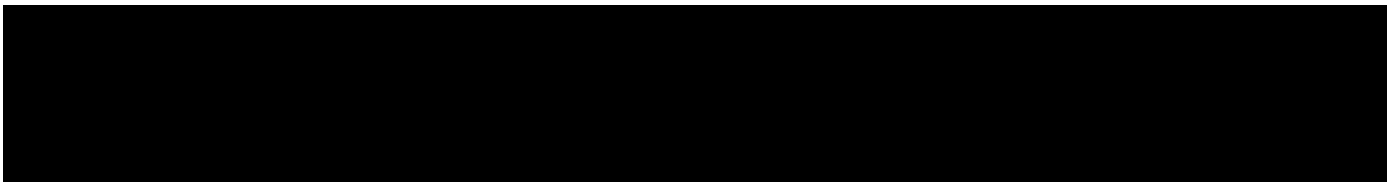
Proposed Work to Be Conducted

Work has been proposed at the Bonehole low-water crossing on the Big River and the Owl Creek dam upstream of the confluence of the Big River and Owl Creek in St. Francois County, Missouri. In addition, the cleaning up of Owl Creek and a proposed park area at the Bonehole have also been mentioned. It should be noted that the Owl Creek dam should likely be addressed first, as it is eroding and releasing tailings into Owl Creek and the Big River. All four of these potential projects have further complications due to multiple property owners and potentially responsible parties (PRP). A brief description of each is noted below and photos/maps can be viewed on pages 4-6 of this document.

1. Owl Creek Dam Stabilization – The Owl Creek dam is a mine tailings dam that previously served as a rail line over Owl Creek. It is located on Owl Creek, approximately 1,100 feet upstream of the confluence of Owl Creek and the Big River. The Owl Creek dam is in the process of eroding and releasing tailing into Owl Creek, which then flows into the Big River. The Owl Creek dam and lake are used for recreation to include at least one child that frequently plays in the area. The County, two private property owners, and PRPs would likely be involved in coordination and gaining access for this project.
    a. The EPA proposes stabilizing the dam by lowering it approximately 10 feet and adjusting the slope of the dam by tying back the slope to a 3 horizontal to 1 vertical ratio. The structure is currently at a much steeper slope. Material removed from the dam structure would need to be disposed of properly.
    b. After the height and slope of the dam have been adjusted, a rock cap would be applied to control erosion.



2. Bonehole Low-water Crossing – The Bonehole low-water crossing is a concrete low-water crossing that provides access from publicly owned St. Francois County property on the east bank of the Big River to privately owned property on the west bank of the Big River. The County and a PRP would likely be involved in coordination and gaining access for this project.
    a. The EPA proposes the dredging of potentially lead impacted sediment from the upstream side of the low-water crossing in the Big River. A platform (made of rock or some other acceptable material) will be constructed for a dragline excavator to perform sediment removal from the east side of the Big River. This platform will ideally be designed to provide river access for boats and other small equipment when dredging activities are not occurring.
    b. The sediment material removed from the river channel would be staged for dewatering on the County's property and then hauled to a repository. An area to the south of the low-water crossing would be regraded to dewater, sort and handle excavated sediment prior to disposal.
    c. In addition to these activities, a permanent blockade would be constructed to restrict access to the low-water crossing from the eastern bank. This blockade is important to

discourage vehicles and heavy equipment from crossing the river at this location to protect the integrity of low-water crossing.

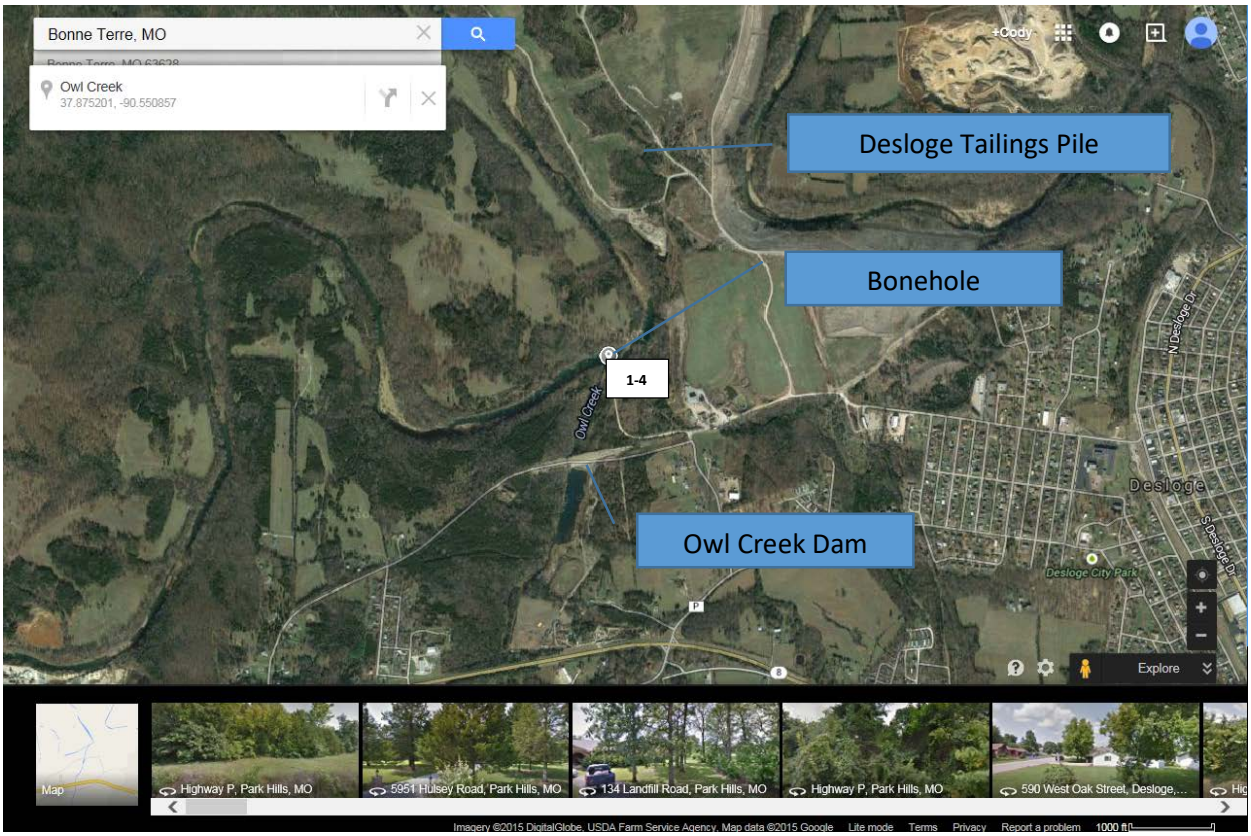
[redacted]

3. Owl Creek Cleanup – An estimate for the cleanup of Owl Creek between the Owl Creek dam and the confluence with the Big River has not been drafted. However, the Owl Creek dam must be stabilized first, prior to cleaning up Owl Creek. Otherwise, tailings will continue to release into Owl Creek. The County, one private property owner, and PRPs would likely be involved in coordination and gaining access for this project.
4. Bonehole Park Area – If St. Francois County declares the Bonehole a county park, making it a High Child Impact Area, then more funding options may be available to address contamination present in the park area. However, the cost for such a measure has not yet been drafted. It should be noted that if future dredging events are planned at the Bonehole location, then this will need to be taken into consideration when planning an area for dewatering, sorting and handling of sediment material. The County and a PRPs would likely be involved in coordination and gaining access for this project.

St. Francois County – Bonehole and Owl Creek Dam Location

Latitude: 37.875201 ˚N
Longitude: -90.550857 ˚W

Description: The "Bonehole" low-water crossing location is directly downstream from the confluence of Big River and Owl Creek and is located west of the City of Desloge and the Desloge tailings pile. The Owl Creek dam is directly upstream of the confluence of the Big River and Owl Creek.



1-4 Photograph numbers

SFTS1 Photograph #1 – View of bank along south side of Big River at the “Bonehole” low-water crossing location. Photographer facing east-northeast.

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SFTS1 Photograph #2 – View of the Big River at the “Bonehole” low-water crossing location. Photographer facing northeast.

SFTS1 Photograph #3 – View of the Big River at the “Bonehole” crossing location. Photographer facing northeast.

SFTS1 Photograph #4 – View of Big River (right side) and Owl Creek (left side) confluence. Photographer facing northeast (upstream of the “Bonehole” low-water crossing).

Additional locations for project work would be at larger properties that already have structures or potential for structures along the Big River, as well as willing landowners and trustees.

1. Hyman Kaye Trust Property – The EPA has proposed a high flow channel to be installed in a bend of the Big River in Jefferson County, Missouri at the intersection of the Big River and Mammoth Road. This project would utilize the historical path of the river to establish a high water channel with a sediment trap to collect sediment during high water flows on the Big River. This project requires working with one private landowner/trust. A map of this property can be viewed below.

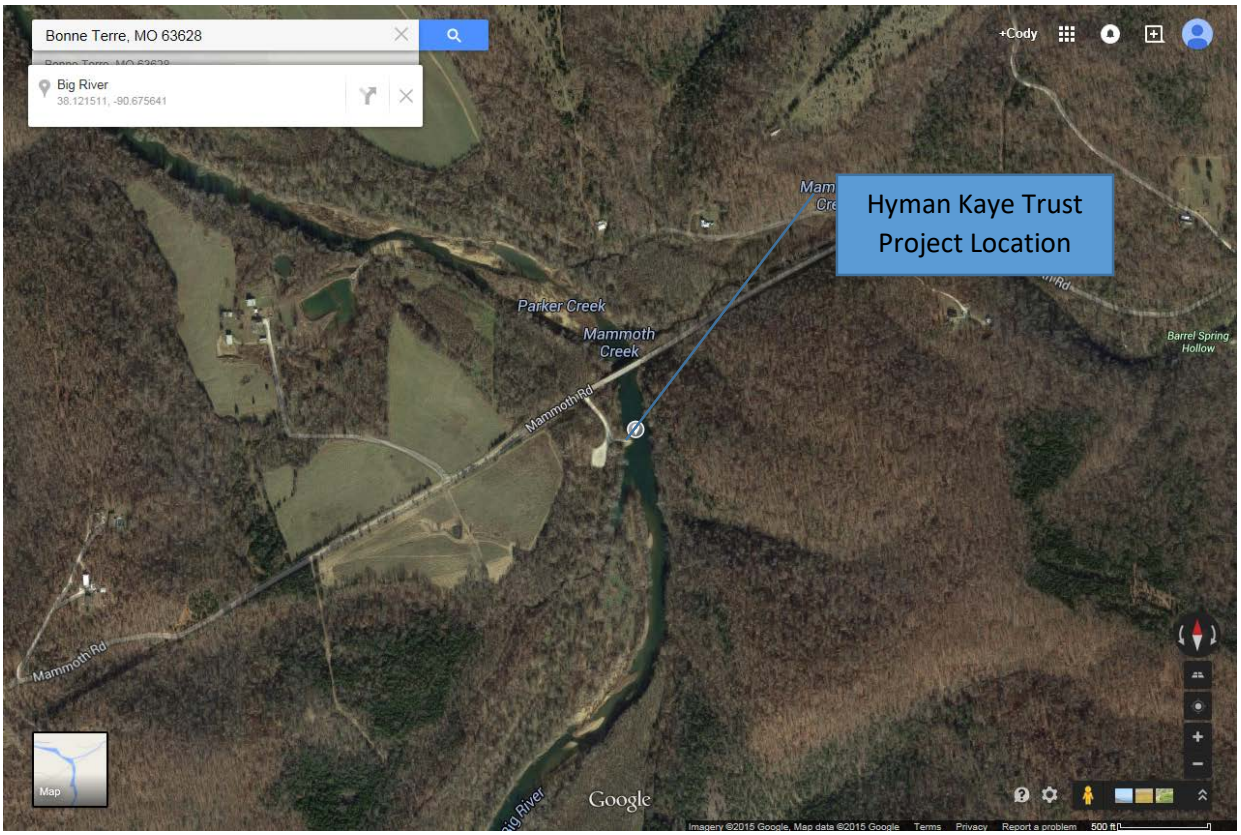
Project Location	Estimated Costs			
	Corps Labor*	Survey Contract	Construction Cost	Total Cost
Mammoth Creek	$ 127,000	$ 25,000	$ 330,000	$ 482,000

* Project management labor is not included in in this estimate.

Jefferson County Treatability Study – Hyman Kaye Trust Project Location

Latitude: 38.121511 ˚N
Longitude: -90.675641 ˚W

Description: This is a segment of the Big River that is directly upstream from Mammoth Bridge/Mammoth Road. The Missouri Department of Conservation Mammoth River Access is directly north of this location.

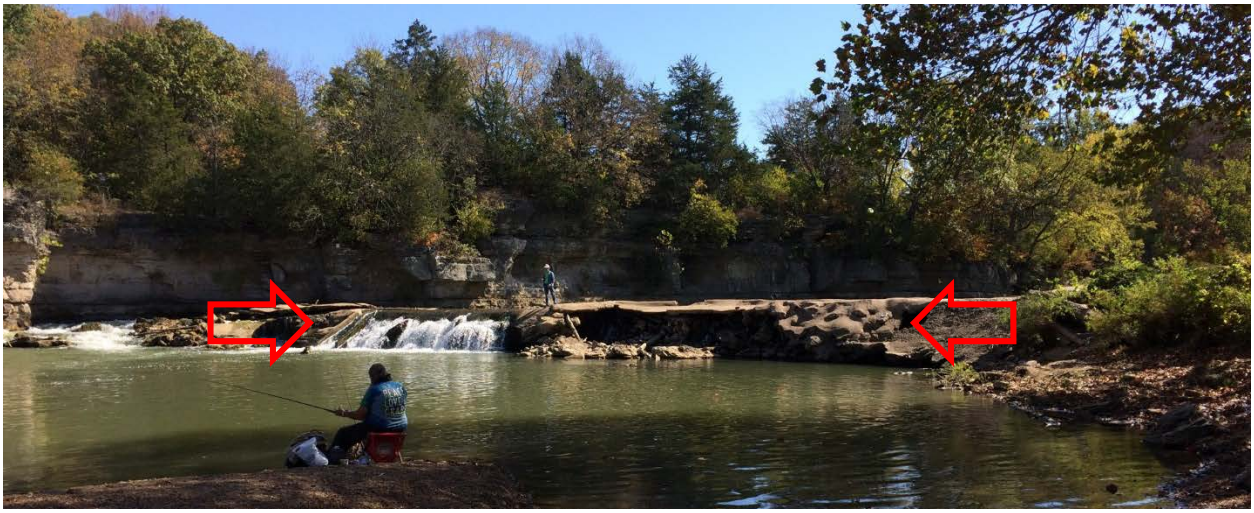


2. Rockford Beach Dam – The EPA has proposed an interim stabilization of the Rockford Beach dam associated with Rockford Beach County Park near Byrnes Mill, Jefferson County, Missouri. The historic mill dam at this location is currently failing and needs to be stabilized in order to prevent the release of built-up lead-impacted sediment from behind the dam. The release of the sediment poses a serious threat to the survival of a bed of endangered mussels located approximately 100 meters downstream of the Rockford Beach dam. This project includes two parts. First is the interim stabilization of the dam to keep it from failing in the short-term. The second part would be to design a long-term solution for stabilizing the dam.

Project Location	Estimated Costs			
	Corps Labor*	Survey Contract	Construction Cost	Total Cost
Interim Dam Stabilization	$ 197,700	$ 25,000	$ 285,000	$ 507,700
Long-term Dam Design	$ 87,600	$ 25,000	$ 285,000	$ 397,600

* Project management labor is not included in in this estimate.

This photograph is the Rockford Beach dam in Jefferson County, Missouri. The dam is in the process of failing. The read arrows indicate the stretch of the dam that would be stabilized over the interim. Fish passage would be possible on the far left side at this time. However, the long-term design may require dam replacement with additional fish passage. This project requires working with the Jefferson County Parks Department.



3. Madison County - Little St. Francis River and Fredericktown City Lake

Madison County, the city of Fredericktown and the EPA have agreed on the development of a new repository in the southwest corner of a city-owned 210 acre parcel along a contaminated rail-bed (outside the 500 year floodplain) adjacent to Fredericktown City Lake. The new Remedial Action contract for Madison County Mines Superfund Site (awarded late September 2015) includes provisions for clearing and grubbing to facilitate utilization of the new repository for the residential soil cleanup (in approximately one year) and disposal by the city/county for lead-contaminated lake sediment. Stabilization and/or removal of sediments in the Little St. Francis River and its feeding tributaries, which are impacted by mine waste, will be necessary prior to lake sediment removal to prevent contaminated sediment from re-entering the lake. The city is independently developing plans to remove lake sediment around the location of their public water supply intake at the city lake and protecting from recontamination by placing a temporary dam at the railroad trestle above the intake location. EPA has recently provided Madison County funding through a State Cooperative Agreement to implement the planning process for developing the Little St. Francis River Watershed Master Plan. The 210 acre city-owned parcel, much of which is projected to not possess contamination from mining, has been promoted by the city as an ideal restoration location for use of NRD settlement funds.

EPA began the Remedial Investigation/Feasibility Study at the end of FY15 with the implementation of a public watershed master planning process leading to a Record of Decision for OU7 – Little St. Francis River (LSFR) Watershed in 2018. The Fredericktown City Lake (community's primary drinking water supply) has lead-impacted sediment from historic up-stream mining. Up-stream tailings sources (piles) are basically stable, but lead-impacted sediment in tributaries and the LSFR River are an ongoing source and need further investigation and potential action. On limited occasions the sludge from the city's primary clarifier(s) has exceeded residential soil standard of 400 ppm lead but EPA is not aware of any exceedances of drinking water standards for site related contaminants. Due to historic siltation of the lake resulting in shallow water depth which is pushing the city toward sediment evacuation somewhat ahead of our plan to develop a remedy. The city is also concerned that the siltation from historic sources is compromising their water supply availability during periods of drought.

In order for the city to remove lake sediment, it will require disposal due to the presence of lead contamination. EPA, the City of Fredericktown and Madison County are currently developing a repository in close proximity to the lake along a contaminated rail bed constructed of mine waste that EPA would eventually target to remediate. Our plan is to engage other government stakeholders (through the watershed master planning process) and identify grants/funding for water supply improvement/enhancement in hope of developing cost-sharing measures that will serve multiple interests since removal of lake sediment is not solely driven by the fact it possesses contamination from historic mining and processing. The 210 acre city-owned parcel, much of which is projected to not possess contamination from mining, has been promoted by the city as an ideal restoration location for use of NRD settlement funds.